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FOOD RATIONS AND PORTIONS IN CRETAN HIEROGLYPHIC DOCUMENTS*

Introduction

In working with Cretan Hieroglyphic, my goal has not been to decipher the language of the script but rather to understand (1) how the scribes organized information on the clay documents, (2) how the administrative process worked, and (3) what role the various types of clay documents and Hieroglyphic sealstones played in that administrative process.

My procedure has been to look at the Hieroglyphic corpus as a whole, to take each document as published in *CHIC*, to try to understand how the numbers worked (do they add up?; are there two lists of totals: totals paid and totals not paid?), to reorganize the texts so they conform to a modern itemized receipt or budget (my "normalization" process), and then to take what progress I make in reading one document to help me understand other documents.

In this paper I will use this method and my three goals to shape my discussion of two sets of Hieroglyphic documents from Knossos that record the assessments, collections and deficits, and redistribution of a quantity of food that includes wine, grain or bread, figs, olives and olive oil, and cattle.

In what follows, I shall usually omit the transnumerations of the texts (these can be found in *CHIC* and on my Hieroglyphic website: <http://people.ku.edu/~jyounger/Hiero>) and my suggested phonetic values. My purpose in omitting this information is simply to make the following discussion more readable.

Knossos Set 1 (Pl. LXIXa)

I start with clay bar #058, which is complete (Pl. LXIXb). It begins with the common header (𐀓 𐀔 𐀕) followed by a very large number, **1640**, undoubtedly an assessment, and then a list of six words followed by small numbers that total 330, probably partial receipts. Of the header, the last sign (𐀕 061) is always a terminal and probably means just that; the first sign (𐀓 042) is always an initial and looks like the predecessor to AB *a*, and the second sign (𐀔 054) may be the predecessor to AB *de*. The header *A-DE* is common in Hieroglyphic and may be related to the common Linear A header *A-DU*. The other words are not at present meaningful, but since most are *hapax legomena*, they are probably names.

With 330, we need 1310 to come up to the assessment **1640**, and we can find it by associating two other documents, bars #057 and #062 (see Pl. LXIXa). I will not discuss these documents here—they are not central to my main theme.

But the 330 commodities that are listed on bar #058 are central. And we can locate these on other documents. Bar #052 (Pl. LXXa) seems to have two lists, one of five small numbers and another of two large numbers, **290** and **710**, which must be assessments since they add up to a round 1000. When we normalize this bar we read sides *a* and *c* together (sides that are

* This study adapts texts from J.-P. OLIVIER and L. GODART, *Corpus Hieroglyphicarum Inscriptionum Cretae* (1996), hereafter *CHIC*. I am deeply indebted to J.-P. Olivier for the fonts, *Malia-Maigre* and *Malia-Gros*, specially designed for writing Cretan Hieroglyphic in Microsoft Word in Mac OS X. I am also grateful to Brent Davis for reading a version of this paper at the DAIS Conference. Proposed phonetic values for Hieroglyphic signs are given as italicized capitals (e.g., *DE*); doubtful signs are underlined in both text and illustrations; document numbers in bold refer to seal impressions in *CHIC*; numbers in bold are those actually given in the texts, while regular numbers are those restored in the texts. For some of the signs I give whimsical names to describe their appearance (e.g., "lightning-mountain-top" *167 𐀓) and to make them more memorable.

Knossos Set 2

Another bar #053 (Pl. LXXc) takes up 330 of the 430 collections and itemizes them in two lists. First, the commodities: **170** pot-items 𐤃 *150, and **160** arrow-items \uparrow *176;⁸ it then reallocates these (list 2): **110** pot-items 𐤃 *150, and **170** arrow-items \uparrow *176. The intervening side c (between the two lists) presents 50 cattle 𐤃 *152 (inscribed as two encircled [corralled?] sub-herds of 20 and 30 each).⁹ Since the 50 cattle plus **110** pot-items totals 160, I assume that List 2+cattle is some kind of restatement and reorganization of List 1.

I will return to the inscription on the end of the bar (side e).

On bar #065 (Pl. LXXd), 340 of the original 430 commodities¹⁰ are broken down in detail; this bar comprises a complete and careful summary of two fragmentary bars #066 and #067 – these all make up what I call Knossos Set 2 (Pl. LXXIa).

All three documents list specific commodities: some kind of pot-item (by itself [𐤃 *161] or accompanied by the double-ax [𐤃𐤃 *175+*161]), some kind of cattle (by itself [𐤃 *152] or accompanied by an adjunct [𐤃𐤃 089+*152, #065b.4] that may also appear by itself [𐤃 *171, #067a.2], some wine (𐤃 *156), some kind of grain (𐤃 *180 or 𐤃 *182),¹¹ some unknown commodity (𐤃 *178), some oil (𐤃 *158), another unknown item (“lightning-mountain-top” 𐤃 *167), and some figs (𐤃 *155).

Now that we have some idea of what these 340 commodities are, in detail, we return to bar #053 (Pl. LXXc) that concerns 330 of these commodities in two groups of **170** and **160**. This time, we look at the inscription on the end of the bar (side e). End-inscriptions occur rarely;¹² presumably when stored on a shelf, the end would convey identifying information, like the label on a file folder. This inscription simply says “harp-man” **22** (𐤃𐤃 058-002). The man sign (looking like a bald doll’s bust) occurs frequently enough that I designate it *VIR*₂. It always occurs at the end of a signgroup, probably as one of the *VIR* logograms (person, personnel). What harp-man means, I do not know, but it may have something to do with the appearance of “crowned-man” (𐤃 003) that terminates the heading at the top of this document #053, announcing (I imagine) the subject of the inscription: people and commodities (including cattle).

It is therefore not coincidental, I think, that the **22** harp-men (𐤃𐤃 058-002) divide into the number of the commodities (330) a neat 15 times, suggesting a distribution among these **22** harp-men of 15 sets of commodities per harp-man. These harp-men may be workers, each getting 15 sets of commodities (a half-month’s worth), or each might be an overseer of 15 workers, each of whom would be getting a single set of rations. If our harp-men are supervisors, special people, then perhaps that is the meaning of the crowned-man (𐤃 003) in the heading.¹³

Rations/Portions

This distribution of commodities among people allows us to think in terms of provisions and/or rations. Typical clusters of comestibles, for example, occur on several Hieroglyphic and Linear A documents. For example, Linear A tablet 114 from Ayia Triada (Pl. LXXIb) lists four

8 Logogram \uparrow *176 appears only on this document.

9 These two signs 𐤃𐤃 , which *CHIC* numbers 074 and 075, appear only on this document. I take it not coincidental that the two circles contain two and three dots (10s, not dashes or strokes, 100s), respectively, signifying groups of 20 and 30.

10 330 on #053 and another 100 restorable on either crescent #036 or #046.

11 For the possible identification of these commodities, see J.G. YOUNGER, “The Cretan Hieroglyphic Script: A Review Article,” *Minos* 31-32 (1996-1997) 379-400, esp. the discussion concerning the conventional order of commodities in Hieroglyphic and Linear A (pp. 390, 397-398).

12 Only four other bars have an inscription on their end: #054 (Knossos; recording the difference between assessment and contribution), #056 (Knossos; the same?), #061 (Knossos; recording the total), and #117 (Malia; trace of a sign).

13 Sign 𐤃 003 looks like the bust of a human figure with a branch over its head; I have designated it *VIR*₃ (𐤃 001 *VIR*₁, 𐤃 002 *VIR*₂). The sign appears only four other times (#049.d, #060.a, #068.r.A, and #109.a). Bars #060 and #109 are not helpful, but tablet #068 (Pl. LXXId) cites sign 𐤃 003 among a list of commodities, as if also listing personnel.

commodities and two types of wine (VINa and SA VINa). If we combine the two types of wine to make 10 units, and combine the oil and BOS to make another 10 units, then these are in a 1:1 ratio with GRA — plus a small amount of figs.


Of course I would expect the units of liquids to be different than the units of solids like figs; I have no idea how GRA would be measured, but if in loaves that might help explain the simple ratios between it and the other comestibles.









If we imagine that these comestibles were destined for 10 people at SA-RA₂ (and it would be difficult to imagine any other animal eating such comestibles), each person would get 1 portion of wine, 1 portion of OLE+BOS,¹⁴ and 1 portion of GRA — plus a small amount of figs.




Compare another Linear A tablet, HT 121 (Pl. LXXIc), which sets out a similar set of ratios. I concentrate on the comestibles cited for SA-RA₂: if we divide the figs (FIC) in half to produce a base unit (1), and make the other commodities proportional to it, then we get FIC=1, VIN = 1 ½, BOS = 1 ½, OLE = 2, and GRA = 2 ½. Again, if we imagine these food items destined for people, we could imagine that a single person at SA-RA₂ would be getting 1 portion of figs, a portion and a half of wine and of BOS, 2 portions of oil, and 2 portions and a half of GRA.

If BOS were a portion of meat and GRA a loaf of bread (this is just a suggestion for narrative purposes), then we could imagine one person getting a cup of wine or two, a loaf of bread, some olive oil for dipping, and a cut of meat — plus a small amount of figs.


Let us return to the Hieroglyphic documents.

Like bar #053 that lists commodities associated with harp-men, tablet #068 (Pl. LXXId) sets out amounts of commodities, including personnel (crowned men , VIR₂).



The ratio of wine () to person ( : ; VIN : VIR₂) is 2:1. And if the double-ax commodity  is added to GRA  (plus , a fraction?, perhaps 1/8),¹⁵ then that combined commodity  is also approximately in a 2:1 ratio with olives .






If we think of these staples (wine, GRA, olives, and “double ax” ) as being distributed among the 5 VIR₂ , we obtain some slightly complex ratios.¹⁶ We can make these ratios simpler, however, if we combine the double ax and OLIV, producing: VIN 2 per person, +OLIV 1.95 per person, and GRA 3 per person.



In other words, each person is getting 2 portions of wine, a little under 2 portions of double ax plus olives, and 3 portions of GRA.

If double ax  is a portion of meat (like BOS in the Linear A examples) and GRA were a loaf of bread, then we could imagine one person getting a large cup of wine, a large loaf of bread, and some olives to accompany a small cut of meat — perhaps not a feast, but certainly a satisfying lunch.

John G. YOUNGER

14 The juxtaposition of OLIV+double ax  on the previous Hieroglyphic document #068 and of OLE+BOS on HT 114 suggests that double ax  may be a portion of meat.

15 This sign appears only on this document. If it is a fraction, as CHIC seems to think, the fact that it occurs twice in this document, each time in threes, , implies that a fourth occurrence of the sign would equal a whole number or a fraction that already has a sign. Unless  is another and idiosyncratic way of writing 1/4, it could designate 1/8.  would then mean 3/8, while four of these signs (), totaling 1/2, would be conventionally written as  (see the caption to Pl. LXXIa).

16  1 3/8? = 0.275/person; 8 3/8? OLIV = 1.675/person; 10 VIN = 2/person (assuming  is a person).

LIST OF ILLUSTRATIONS

- Pl. LXIXa Knossos Set 1: crescent #020; bars #052, #057, #058, #062.
Pl. LXIXb *CHIC* #058, bar from Knossos.
Pl. LXXa *CHIC* #052, bar from Knossos.
Pl. LXXb *CHIC* #020, crescent sealing from Knossos, plus its seal impression #145 (*CMS* II 8, no. 78).
Pl. LXXc *CHIC* #053, bar from Knossos.
Pl. LXXd *CHIC* #065, bar from Knossos.
Pl. LXXIa Knossos Set 2: bars #067, #066, #065.
Pl. LXXIb HT 114, tablet from Haghia Triada.
Pl. LXXIc HT 121, tablet from Haghia Triada.
Pl. LXXId *CHIC* #068, tablet from Knossos.

contribution summary on crescent #020	contribution summary on bar #052	contribution summary on bars #057, #058, #062
		#057a 𐀀𐀁𐀂𐀃 10
		#057b 𐀄𐀅𐀆𐀇 20
		#057c 𐀈𐀉𐀊𐀋 20
		#057d 𐀌𐀍𐀎𐀏 50
		total 100
#020d 𐀐𐀑𐀒𐀓 𐀔	#052a2 𐀕𐀖𐀗𐀘 40	#058b1 𐀙𐀚𐀛𐀜 80
#020b 𐀝𐀞𐀟𐀠	#052c1]𐀡 50	#058b2 𐀛𐀜𐀝𐀞 50
	#052a1]𐀢 60	#058c1 𐀟𐀠𐀡𐀢 60
	#052c0 <20>	#058c2 𐀣𐀤𐀥𐀦 20
	#052c3 70	#058d1 𐀧𐀨𐀩𐀪 90
	#052c2 50	#058d2 𐀫𐀬𐀭𐀮 30
	#052b]X 𐀯𐀰𐀱𐀲 290	
#020γ (#145) 𐀳𐀴𐀵 {𐀶}	#052d]𐀷𐀸𐀹𐁀 710	
	total 1000	total 330
		#062a1 𐁁𐁂𐁃𐁄 500[
		#062bB-A]𐁅𐁆𐁇𐁈]140
		#062cB-A]𐁉𐁊𐁋𐁌]30
		#062dB-A]𐁍𐁎𐁏𐁐]540
		#062a2 X 𐁑𐁒𐁓𐁔
		total 1210
		total #058a X 𐁕𐁖𐁗𐁘 1640

Knossos Set 1

a

CHIC #058

As on the bar

a.	X 𐀀𐀁𐀂𐀃	1640	
b.	𐀙𐀚𐀛𐀜	80	𐀛𐀜𐀝𐀞 50
c.	𐀟𐀠𐀡𐀢	60	X 𐀣𐀤𐀥𐀦 20
d.	𐀧𐀨𐀩𐀪	90	𐀫𐀬𐀭𐀮 30

CHIC normalizes

a.	X 𐀀𐀁𐀂𐀃	1640
b1.	𐀙𐀚𐀛𐀜	80
b2.	𐀛𐀜𐀝𐀞	50
c1.	𐀟𐀠𐀡𐀢	60
c2.	X 𐀣𐀤𐀥𐀦	20
d1.	𐀧𐀨𐀩𐀪	90
d2.	𐀫𐀬𐀭𐀮	30

b

CHIC #052

As on the bar

- a.]] 60 X \uparrow \odot \searrow Ψ 40
 b.]X Ψ \odot \searrow 290
 c.]50 50 70
 d.] Ψ \odot 710

JGY normalizes and reorders the lines

- a1]] 60
 a2 X \uparrow \odot \searrow Ψ 40
 c0 [20]
 c1]50
 c2 50
 c3 70
 b]X Ψ \odot \searrow 290
 d] Ψ \odot 710

d or:] Ψ \odot 710

a

CHIC #020

JGY normalizes (reading backward)

a. no seal impression

b. Ψ [\odot]d. \odot [\odot]g. (#145) \odot [\odot]

CMS II 8, no. 78



b

CHIC #053

JGY normalizes and reorders the lines

aA]X Ψ \odot \searrow \odot aB] \odot Ψ \odot b1]X \odot 170b2 X \uparrow 160

List 1

d1] \odot 110[]d2 X \uparrow 170[

List 2

c1-2] \odot X \odot \odot [

cattle 20+30

e X \odot 22

c

CHIC #065

a X \triangle \uparrow \searrow \odot 1X \odot \odot 1b X \odot Ψ 1 \odot

t

300

c \odot 1 \odot

t

2 32

 \odot

1

d X \odot 1 \odot

t












 \odot

t

 \odot

t

d

commodity summary on bar #067	commodity summary on bar #066	commodity summary on bar #065
	c]  1	a1 X     1
d X • [a2 X   1
c2 X   1		b1 X   1
	d2 